Fermilab Today

Wednesday, February 9, 2005

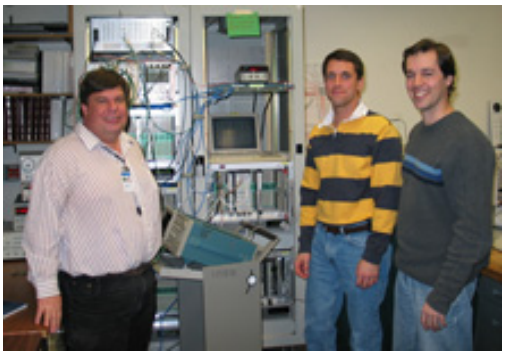
## Calendar

Happy New Year! Today is the first day of the year 4702 of the Chinese calendar. It is the year of the rooster.
Wednesday, February 9
11:00 a.m. Fermilab ILC R&D Meeting - 1 West
Speaker: N. Khalatyan, KEK/Fermilab
Title: CDC Tracker for the ILC
2:00 p.m. Proton Driver General Meeting - 1 West
Speaker: R. Ray, Fermilab
Title: Muon Physics Working Group Report
Speaker: T. Peterson, Fermilab
Title: What's Inside a TESLA Cryomodule
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4:00 p.m. Fermilab Colloquium - 1 West
Speaker: G. Bertone, Fermilab
Title: Dark Matter Particles: MeV, TeV, or Heavier?

Thursday, February 10
2:30 p.m. Theoretical Physics Seminar - Curia II
Speaker: F. Cachazo, Institute for Advanced Study
Title: New Techniques in Perturbative Gauge Theory: Tree and One-Loop Calculations
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

## Weather

## BPM Upgrade To Magnify View in Tevatron



Rob Kutschke, Jim Steimel and Luciano Piccoli with the beam position monitor instrumentation. (Click on image for larger version.)

The Tevatron's current Beam Position Monitoring system (BPM) is old enough to have a Z80 processor - the same piece used in video games such as Atari and Sega dating from 1976. "The old system is the same one that was installed when the Tevatron was built nearly 25 years ago, and is no longer adequate or reliable enough for the current Tevatron," said Steve Wolbers of Fermilab's Computing Division, who headed the upgrade.

In a joint effort between the Computing Division and the Accelerator Division, about 35 people have contributed to the design and construction of the new BPM hardware and software. "The upgrade will give the ability to see anti-protons, improve resolution by a factor of 10 and improve overall reliability," said Jim Steimel of Fermilab's Accelerator Division, the project's Technical Coordinator.

Main components include up to six

## In the News

### FYI: AIP Bulletin of Science Policy News, February 8, 2005

**President Bush Requests Almost Flat FY 2006 R&D Funding**

"The budget is not flat, but pretty close," OSTP Director John Marburger said yesterday at a White House briefing on the FY 2006 research and development budget request. The request is somewhat like viewing a glass that is half-empty/half-full. Characterizing the overall request and its components very much depends upon the perspective employed, with the caveat, as Marburger said, that "the devil is sometimes in the detail."

Federal program expenditures can be categorized as discretionary and non-discretionary. Non-discretionary spending is mandated by law, and includes programs such as Social Security. Unless the underlying law is changed, as is now being proposed for Social Security, spending is largely automatic. Discretionary spending varies, and depends on the will of the Congress as expressed through the appropriations bills. R&D funding falls into this category, so that the annual budgets for NSF or DOE, for instance, will vary.

read more

## Announcements

Chance Snow 28º/18º

Extended Forecast

Weather at Fermilab

**Current Security Status**

Secon Level 3

**Wilson Hall Cafe**

Wednesday, February 8
French Onion soup
Texas Style Meatloaf Sandwich $4.75
Grilled Chicken with Blakc Bean & Corn Salsa $3.75
Kielbasa & Sauerkraut $3.75
Three Cheese & Tomato Panini $4.75
Sausage & Pepperoni Combo $2.75
Fettucine Carbonara with Ham & Mushrooms $4.75

The Wilson Hall Cafe now accepts Visa, Master Card, Discover and American Express at Cash Register #1.

Wilson Hall Cafe Menu
Chez Leon will be closed through January and February

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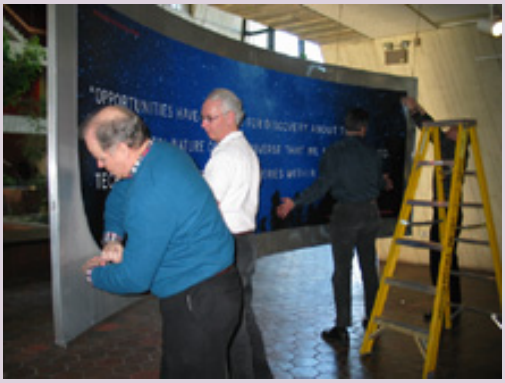
**Info**

commercial 14-bit Echotek digital signal receivers and six front-end analog filter boards for each of the 27 Tevatron houses. "The filter boards provide signal attenuation, provide a diagnostic signal for the entire system and allow only a band of frequencies centered around 53 MHz into the Echotek boards," said Luciano Piccoli of Fermilab's Computing Division, who helped write the front-end software.

The TeV BPM project team members tested capabilities of the new system, as well. "We correlated the data with the accelerator, and gave feedback to the designers and debuggers. These tests let us know what needs to be calibrated and how frequently," said Rob Kutschke of the Computing Division, who analyzed data from the new system. Collaborators commissioned the first production system in the A3 building last week, and plan to install systems in two or three houses per week, hoping to finish in April. Installation will occur as the Tevatron runs at record pace, during which time the "mixed" system of old and new pieces must function for daily operations.

## Quantum Universe Exhibit on Display in Wilson Hall



**EPS High Energy Particle Physics Prizes 2005**

The EPS HEPP Board is calling for nominations for the EPS High Energy Particle Physics Prizes in 2005. These prizes include the High Energy and Particle Physics Prize, the Young Physicist Prize, the Gribov Medal and the Outreach Prize. A complete list of prizes and regulations is available online. The deadline for nominations is April 15, 2005. The prizes will be awarded in a ceremony on July 25, 2005 during the Internation Europhysics Conference on HEPP, Lisbon.

**Fermilab Offers Family Open House, Sunday, Feb. 13, 2005**

Register by February 10

From historical scientists to hands-on activities, from an accelerator tour to a liquid-nitrogen show, the Family Open House on Sunday, February 13 from 1:00 p.m. to 4:00 p.m. at Fermilab offers something for the entire family. Visitors need to register by February 10 to receive free tickets. To register, please send an email to edreg@fnal.gov or call Nancy Lanning at 630-840-5588. All are welcome, but the Open House activities will be most appropriate for students age 11 and up.

more information

**World Year of Physics Volunteers Needed**

In honor of the World Year of Physics, Fermilab is trying to reach 10,000 students in their classrooms. Senior physicists, graduate students, engineers and technicians can all volunteer to spend a few half-days

Fermilab Today is online at:
http://www.fnal.gov/today/

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(Left to Right) Fred Ullrich, Kent Collins, Kevin Munday and Kurt Riesselmann installing the Quantum Universe exhibit in the 1 East Gallery in Wilson Hall. (Click on image for larger version.)

When in the midst of making great discoveries and posing new ideas, where the field of particle physics currently stands, it's challenging to step back and to try to understand where everything is going as a whole. The new Quantum Universe exhibit in the Wilson Hall 1 East Gallery presents an overview of the current questions in particle physics, and makes them exciting to a public audience as well. "Modern science is very technical, but we owe it to our fellow citizens of the world to tell them about this great adventure of discovery," said astrophysicist Rocky Kolb of Fermilab's Particle Physics Division.

The exhibit has many large photographs and short descriptions highlighting the most intriguing scientific ideas. "The exhibit is catchy, and it succeeds in presenting science in a more human, less abstract way," said Michel S orel of Columbia University, who works on MiniBooNE.

"The future of basic science is in the people," said Fermilab theoretical physicist Joe Lykken. "Science in general is only important if you communicate it and apply the results to the whole world; otherwise, it's worthless."

The exhibit explains the nine most important questions in particle physics and astrophysics. Kolb, Sorel and Lykken picked four questions (dark

back in school. Demonstrations on electricity and magnetism, light and color, cryogenics, forces and motion and more are all available. Fermilab also has experts that can provide training and orientation. Contact Nancy Lanning to sign up to be a World Year of Physics volunteer.

Fermilab Barnstormers Meeting this Wednesday
The Fermilab Barnstormers - Model Aeronautic Club will have its meeting this Wednesday at 5:30 pm at the Users' Center Music Room. Meetings are held on the second Wednesday of each month.
more information

Fermilab Employee Art Show
The deadline to submitt an intent application for the Fermilab Employee Art Show is March 10. Artwork must be submitted to the the gallery on April 4 and April 5. The Artist Reception for the show will be on April 20 from 5:00 p.m. to 7:00 p.m. Employees will pick up their artwork on June 1 and June 2. Contact Georgia Schwender for more information. An application is available to download online.

Upcoming Activities

**matter, neutrinos, dark energy, undiscovered principles of nature) most likely to be answered first. "There's a good chance at Fermilab or somewhere else for discovering supersymmetry," said Lykken. "If I had to bet my own money, I would guess supersymmetry in the next four to five years."**